

**REMARKS**

Claims 4-7 are objected to under 37 C.F.R. 1.75(c) as being improper form because a multiple dependent claim cannot depend on a multiple claim.

Reconsideration is respectfully requested. Claim 4 has been amended into independent form and claim 5 has been amended to depend only from claim 4. Thus, there are no multiple dependent claims that depend on other multiple dependent claims.

Claims 1-3, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Campbell et al. (U.S. Patent No. 5,844,416) in view of Hirose et al. (U.S. Patent No. 6,452,174). Reconsideration is respectfully requested.

Amended claim 1 is directed to an apparatus for inspecting defects of devices comprising a conductor probe that is fixed relative to a focused ion beam generator and that moves within the deflection range of the ion beam, and a conductor probe that is fixed relative to a sample stage and that moves in synchronization with the sample stage. This is an important aspect of the claimed invention. Neither Campbell nor Hirose disclose or suggest an apparatus comprising such conductor probes.

Campbell simply discloses the use of electrical connections to an integrated circuit for activating and powering the integrated circuit and for measuring the electrical effect produced in the integrated circuit by ion beam irradiation. Specifically, Campbell provides that "[t]he electrical connections may include one or more sockets, probes, clips or the like that are configured or moveable for connection to contact pads or probe points on the integrated circuit." Col. 4, lines 1-6. Campbell provides no discussion of the location of the probes with respect to the ion beam generator and the sample stage. However, based on Figure 1, it appears that all of Campbell's electrical connections (22) and probes are located at the stage (12).

In contrast to Campbell, the present invention provides specific probe locations to minimize inaccuracies due to probe movement. The probes of the present invention allow both wide-range movement and high accuracy movement within a narrow range to improve inspection efficiency. Specifically, amended claim 1 recites a conductor probe that is fixed relative to the ion beam generator and moves within the deflection range of the ion beam, and a conductor probe that is fixed relative to the sample stage and moves in synchronization with the stage. Such probes are not obvious from the disclosure of Campbell.

As noted above, there is no teaching or suggestion in Campbell to locate probes fixed relative to the ion beam generator and fixed relative to the sample stage, nor is there even a recognition in Campbell that probe placement affects inspection results.

Hirose does not overcome the deficiencies of Campbell. The Examiner relies on Hirose as disclosing a movement mechanism for moving the conductor probes. However, Hirose neither suggests nor discloses that probes with different characters are placed in a single chamber, as described above. As this feature is also not disclosed in Campbell, Hirose does not overcome the deficiencies of Campbell. Consequently, the rejection of claim 1 should be withdrawn.

Claim 2 depends on claim 1 is submitted to be allowable for the same reasons as discussed above with respect to claim 1. Moreover, with respect to claim 2, the Office Action provides that Hirose discloses a conductor probe means that can move a tip of the probe conductor in a higher positioning accuracy than that of the sample stage. Hirose, however, does not disclose or suggest a conductor probe fixed relative with respect to the sample stage and thus does not disclose or suggest a probe that is comparatively more accurate than that of the sample stage as provided in claim 2. Consequently, the rejection of claim 2 should be withdrawn for this reason as well.

Claim 3 depends from any one of claims 1 and 2 and is submitted to be allowable for the same reasons as discussed above with respect to claims 1 and 2. Moreover, with respect to claim 3, the Office Action provides that Hirose discloses in Figure 7 a probe movement mechanism fixed to a sidewall of the sample chamber. However, Figure 7 shows that the probe (2) is supported by the driver (22), which is located on the floor of the chamber. Thus, the probe movement mechanism of Hirose appears to be located on the floor of the chamber in contrast to the claimed invention. For this additional reason, claim 3 should be allowable.

Independent claim 8, as amended, includes limitations similar to claim 1, namely a conductor probe that is fixed relative to the ion beam generator and moves within the deflection range of the ion beam, and a conductor probe that is fixed relative to the sample stage and moves in synchronization with the stage. For at least the same reasons given with respect to claim 1 above, the rejection of claim 8 should be withdrawn.

Claim 9 depends from claim 8 and is submitted to be allowable for the same reasons as claim 8. Moreover, with respect to claim 9, the Office Action provides that Hirose discloses a conductor probe means that can move a tip of the probe conductor in higher positioning accuracy than that of the sample stage. However, claim 9 provides that "the tip of the conductor probe held in the position fixed relative to the focused ion beam generator is allowed to move as linked with the visual field of the scanning electron microscope." This limitation of claim 9 is not disclosed or discussed in Hirose, and claim 9 should be allowable for this additional reason.

The Examiner's indication of allowable subject matter in claim 10 is gratefully acknowledged. The objection to claim 10 as being dependent on rejected claims 8 and 9 is submitted to be obviated for the reasons discussed above with respect to claims 8 and 9.


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In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. According, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

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